

Changes Due to MUTCD Adoption

- Change List posted on Supplement web site
- Compares Traffic Manual (May 19, 2004) TCD standards to MUTCD + CA Supplement (May 20, 2004) standards
- List is 73 pages

CHAPTER 2B. REGULATORY SIGNS

The following California regulatory signs have been deleted.

| Code | Sign Title | Comments |
|------|-------------------------------------------------|------------------------------------|
| R6-1 | AUTOS WITH TRAILERS - TRUCKS 55 MAXIMUM | Replaced by CA Code R6-3 & R6-4 |
| R6-2 | TRUCKS - AUTOS WITH TRAILERS RIGHT 2 LANES ONLY | Replaced by CA Code R6-3A & R6-4A |
| R10 | ONE WAY (Pentagon shape) | Use MUTCD R6-1 (Rectangular shape) |
| R16B | NO RIGHT TURN | Use MUTCD R3-1 |
| R17B | NO LEFT TURN | Use MUTCD R3-2 |
| R19 | NO LEFT OR U TURN | Use MUTCD R3-18 |

Part 1

General



Experimentation, Interpretations, Changes (1A.10) - CTCDC

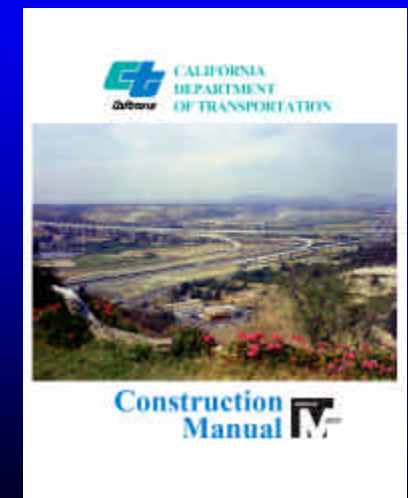
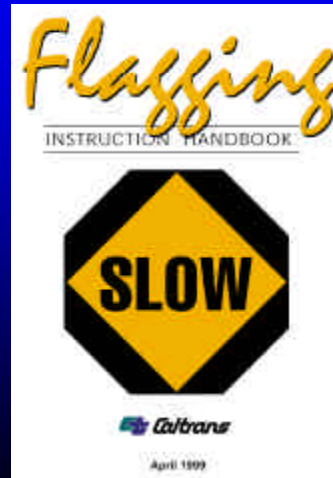
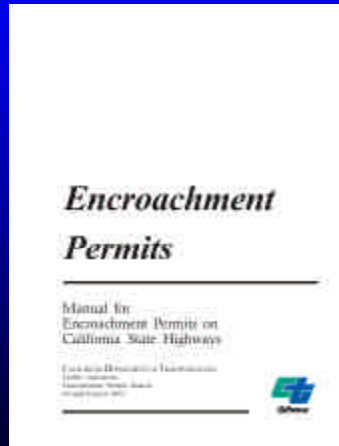
- **Procedure for submission of projects**
- **Procedure for processing requests**
- **Guidelines for experimental proposal**
- **Termination of Experimentation**
- **Removal of Installations**

Other Publications (1A.11)

Highway Design Manual



Maintenance Manual



New Color Fluorescent Pink (1A.12)

Optional for Incident Management signs



Part 2 Signs



Design of Signs (2A.06)



Internet addresses **shall not be shown** on any sign.

Design of Signs (2A.06)



Phone numbers with > 4 characters should not be used.



These are OK



Retroreflectivity & Illumination (2A.08)

- LED option on the border of STOP or Warning signs
- Color red for STOP and yellow for Warning signs



CA Compliant LED Use (2A.08)



Non-Compliant LED Use (2A.08)



Posts and Mountings (2A.21)

- **OPTION:** retroreflective material on supports of regulatory and warning signs
- Color shall match background
- Exception: YIELD, DO NOT ENTER shall be red
- 2" width and 2' above road



STOP Sign (2B.04)



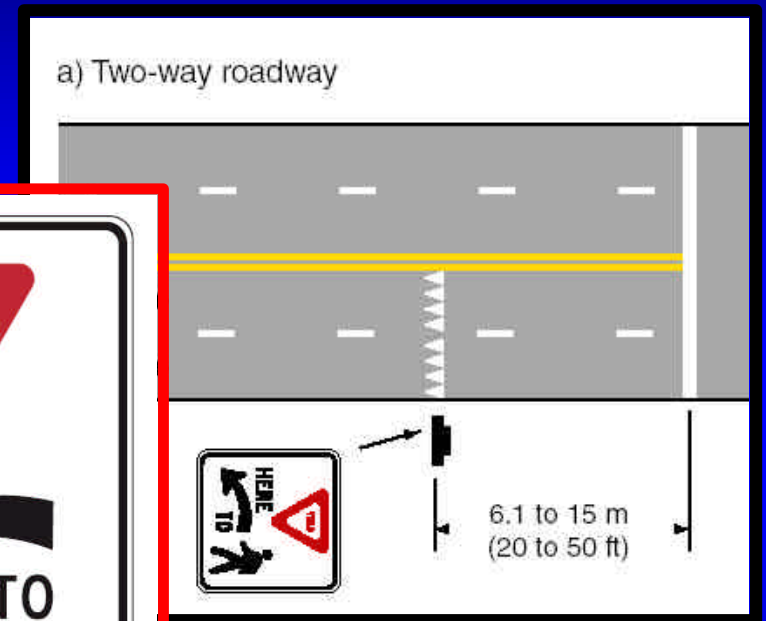
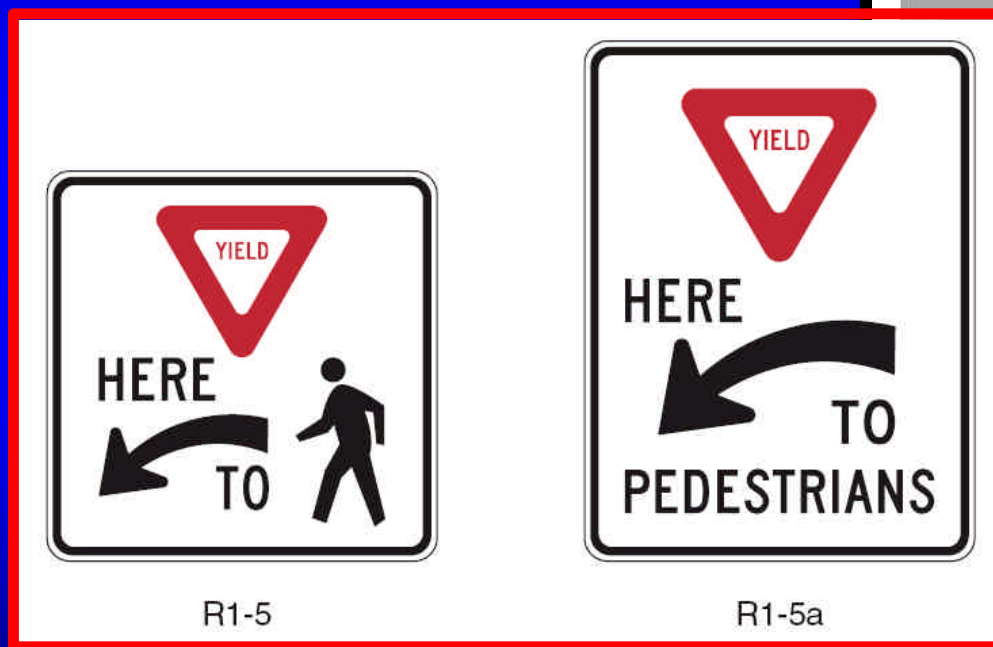
Traffic Manual condition that the Supplemental plaque should not be used at intersections with State Highway, is deleted.



**Supplemental
Plaque**

MUTCD requires Supplemental Plaques on I/Ss with all approaches controlled by STOP signs

Ped Crosswalk Signs (2B.11)

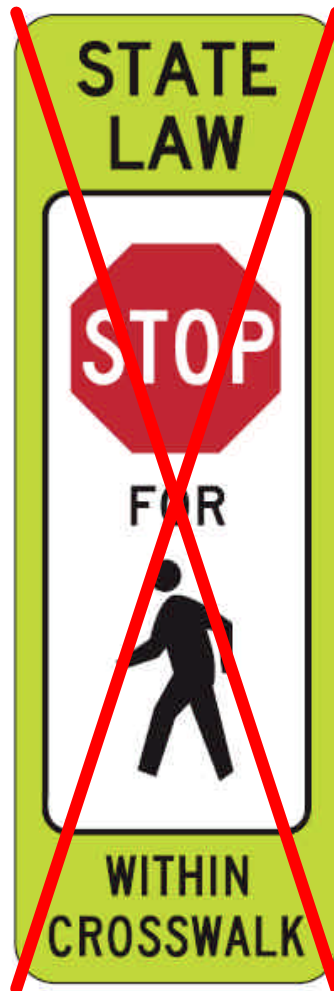


STANDARD: If yield lines used in advance of unsignalized marked mid-block crosswalk.

Ped Crosswalk Signs (2B.12)



R1-6



R1-6a

R1-6 Sign

OPTION: At
unsignalized ped
xing

R1-6a Sign

Deleted per CVC

Changeable Message Speed Limit Signs (2B.13)

OPTION: Display driver's speed in conjunction with Speed Limit Sign



Night Speed Limit Sign (2B.15)



R2-3

New Standard:
If prescribed,
shall be used

Adopted per CVC

Minimum Speed Limit Sign (2B.16)



R2-4

New Option:

Adopted per CVC

Turn Prohibition Signs (2B.19)



CA Code R16B , R17B, R19 and R34A

**Traffic Manual:
Exit Ramps Only**

DELETED

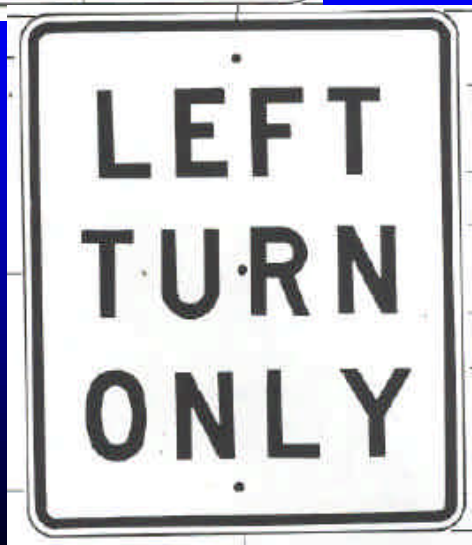


**Use these MUTCD
symbol signs for all
cases**

Mandatory Mov Lane Control Signs (2B.21)



DELETE



USE

R3-5R



R3-5L

ONE WAY Sign 2B.37



MUTCD - Rectangular

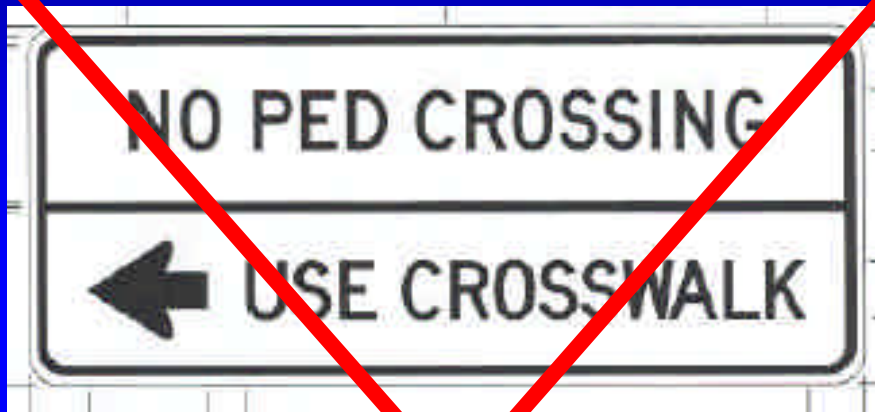


TM - Pentagon

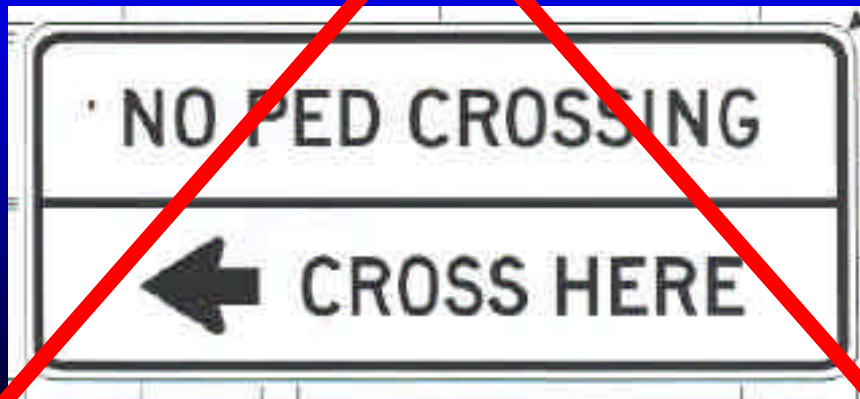


18" @ Ramps & Medians

Pedestrian Crossing Signs (2B.44)



AND



R9-3a



R9-3b

Pedestrian Crossing Signs (2B.44)



Photo Enforced Signs (2B.46)

NEW Signs

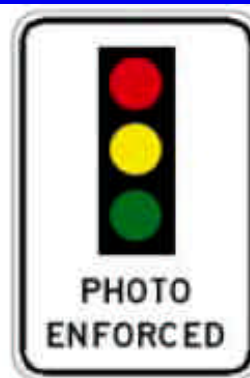


R10-18



R10-19

MUTCD



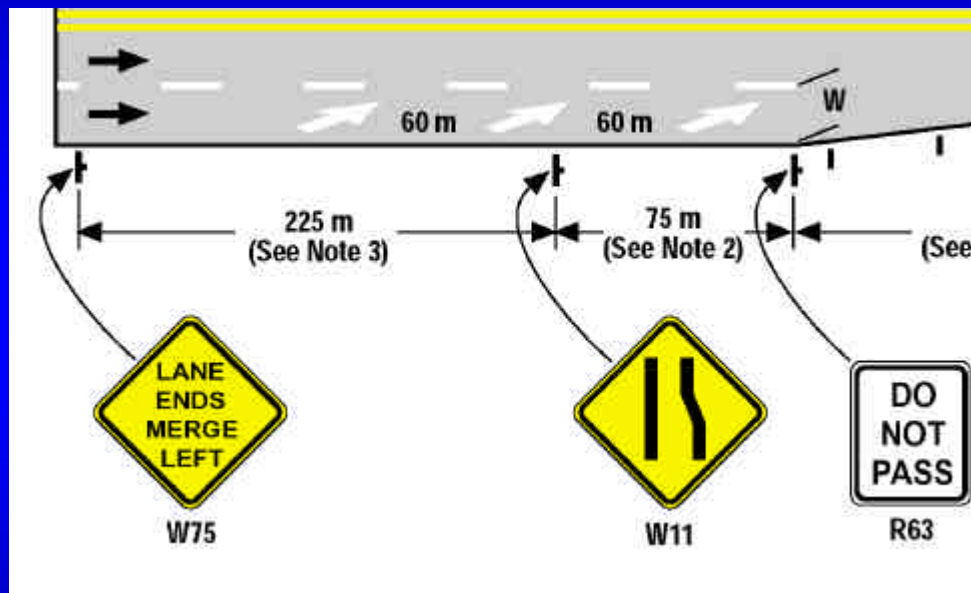
SR56



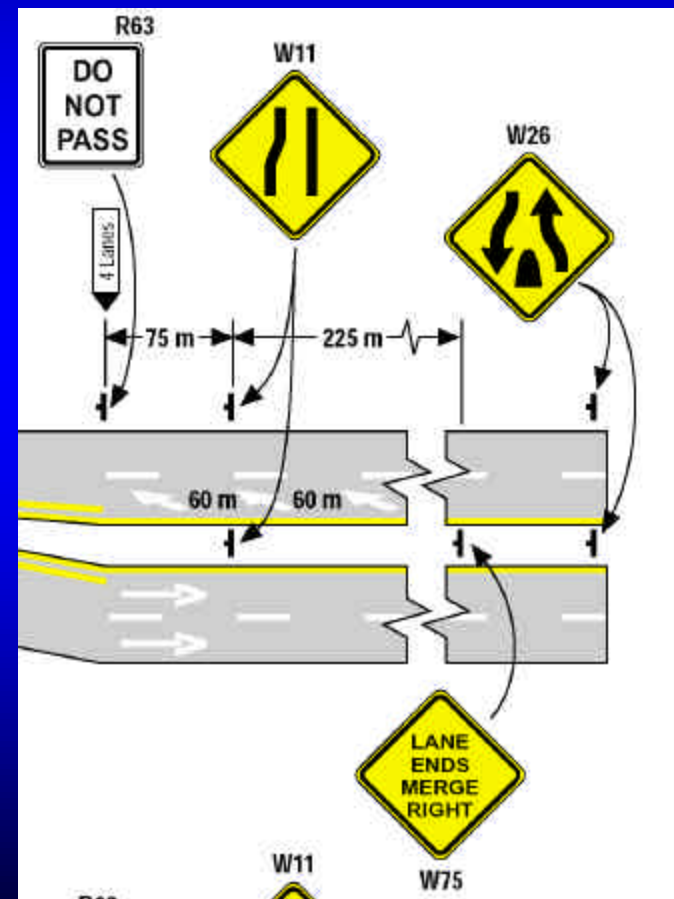
SR58

CA Supplement

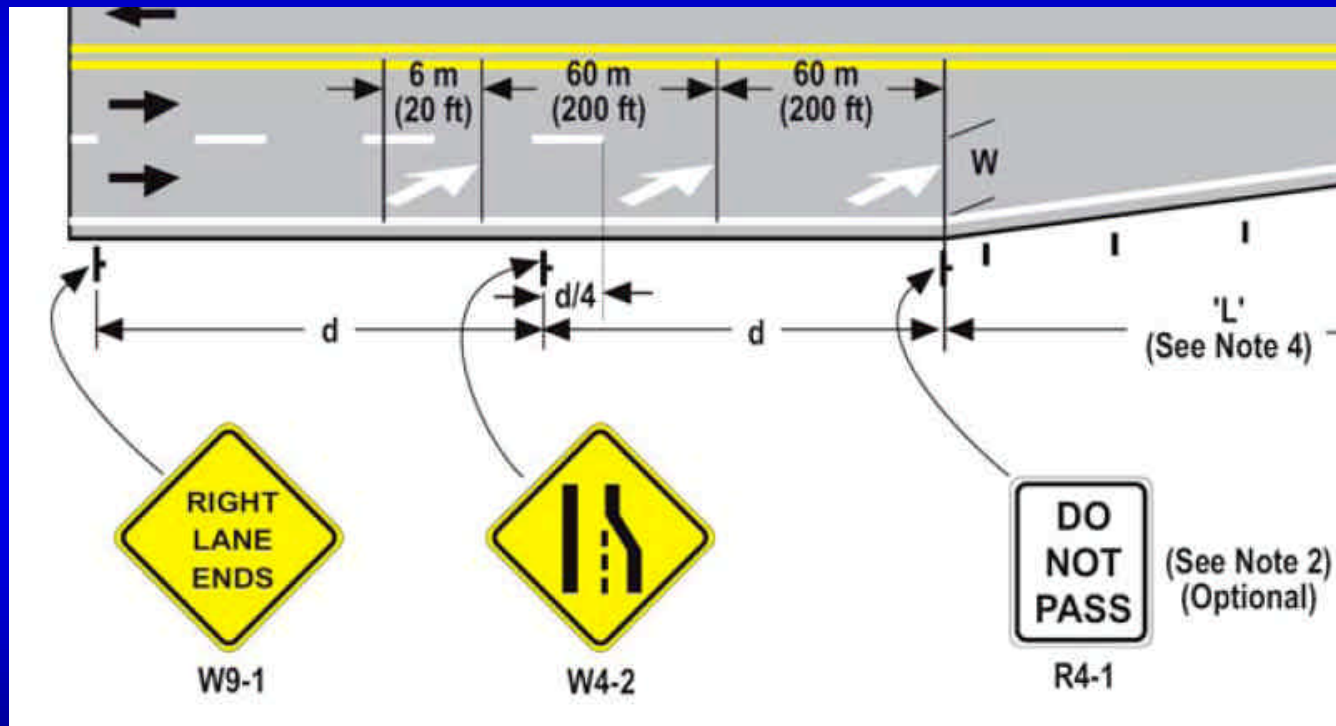
Placement of Warning Signs (2C.05)



Traffic Manual: Fixed distances



Placement of Warning Signs (2C.05)



**MUTCD and Supplement use criteria
based on speed and conditions**

Placement of Warning Signs (2C.05)

Traffic Manual criteria changed to MUTCD PIEV based criteria which includes speed and conditions.

Table based on 2001 AASHTO “A Policy on Geometric Design of Highway and Streets” book.

Page 2C-6

2003 Edition

Table 2C-4. Guidelines for Advance Placement of Warning Signs
(English Units)

| Posted or 85th- Percentile Speed | Advance Placement Distance ¹ | | | | | | | | |
|-------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------|------------------|----|----|----|----|----|
| | Condition A: Speed reduction and lane changing in heavy traffic ² | Condition B: Deceleration to the listed advisory speed (mph) for the condition ⁴ | | | | | | | |
| | | 0 ³ | 10 | 20 | 30 | 40 | 50 | 60 | 70 |
| 20 mph | 225 ft | N/A ⁵ | N/A ⁵ | — | — | — | — | — | — |
| 25 mph | 325 ft | N/A ⁵ | N/A ⁵ | N/A ⁵ | — | — | — | — | — |

Placement of Warning Signs (2C.05)

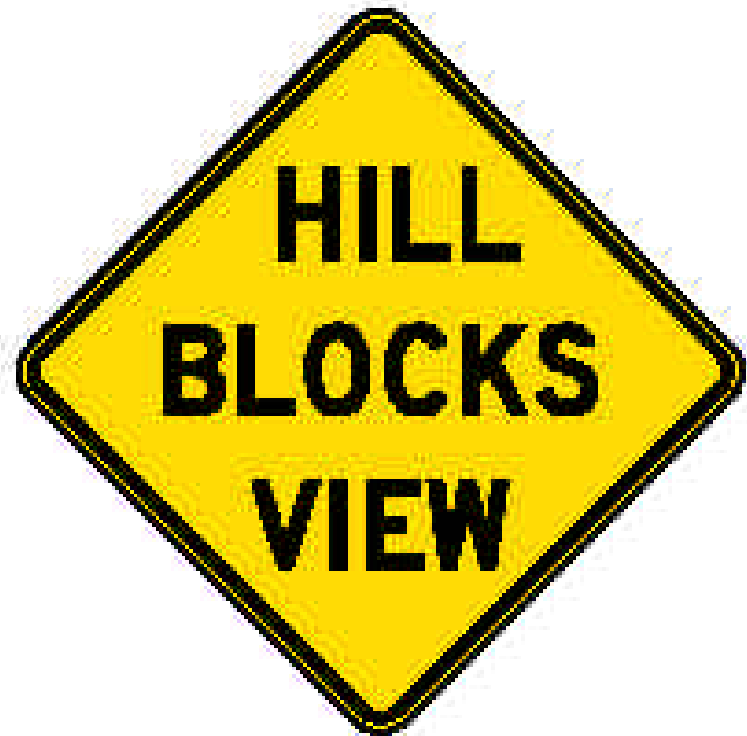
- Perception
- Identification (Understanding)
- Emotion (Decision Making)
- Volition (Execution of Decision)

GUIDANCE: To be applied with engineering judgement

EXCEPTION: Warning signs not related to specific location such as Deer Crossing, SOFT SHOULDER.

HILL BLOCKS VIEW Sign (2C.14)

OPTION



W7-6

2C.24 SPEED HUMP/BUMP Sign

**OPTION: Alternate
legend to SPEED
BUMP**



W17-1

DEAD END/NO OUTLET Signs (2C.21)



DELETED

CA Code W53

Use MUTCD signs



W14-1



W14-1a



W14-2

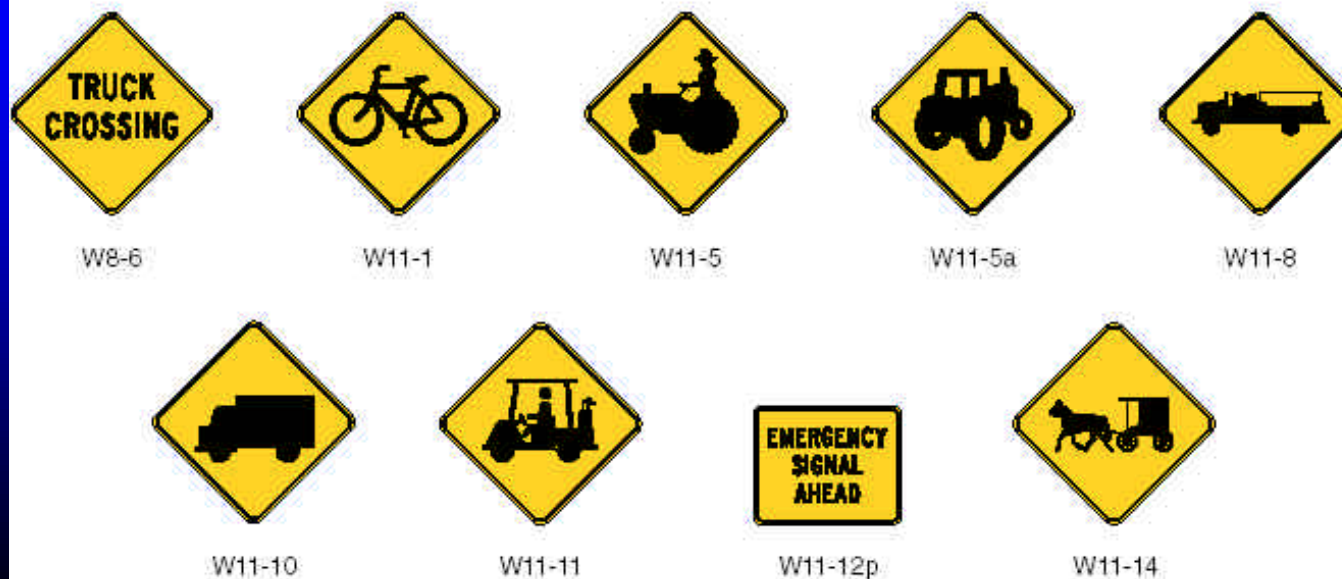


W14-2a

Vehicular Traffic Signs (2C.40)

- New Truck symbol, Bicycle, Golf Cart, and Horse-Drawn Vehicle signs
- **OPTION – SHARE THE ROAD** may be mounted below Vehicular Traffic Signs

Figure 2C-9. Vehicular Traffic Signs



Vehicular Traffic Signs (2C.40)



DELETE
CA SW21 Series
(Color is B/Y)



USE

Crossing Signs (2C.41)

1996 TM

Option



**Advance
Crossing**

Option



**Crosswalk Sign
(with lines)**

2003 MUTCD

Option



Option



Option



Shall



**Deletion of crosswalk lines on
the Crosswalk Sign**

Inaccurate for unmarked crosswalks, snow/ice, sand, etc.

NonVehicular Signs (2C.41)

- New Equestrian, Handicapped, and Snowmobile symbol signs
- OPTION that AHEAD or XX Meters plaque may be used in advance of crossing

Figure 2C-10. Nonvehicular Traffic Signs



W11-2



W11-3



W11-4



W11-6



W11-7



W11-9



W15-1

Ball Bank Criteria (2C.46)

MUTCD (OPTION):

- 85th-percentile speed
- 16-degree ball-bank indicator reading
- Speed based on engineering study

Supplement (GUIDANCE):

- 16-degree ball-bank indicator reading

Supplement (OPTION):

- Comfortable speed curves may be used to check calcs or for design purposes

Ball Bank Criteria (2C.46)

- **Advisory Speed Option:
16° (not 10°) on Ball Bank
Indicator**



16° (2000)

Actual Test Vehicles

**Ford Escort, Chevy Lumina
& Ford Explorer**



10° (1930s)

Ball Bank Criteria (2C.46)

Implementation

- **Caltrans implementation is on hold and under review due to legal and safety implications**
- **Local agencies and other entities are free to implement**
- **Recommend caution for non-CT, until CT decides on implementation procedures**

Color, Retroreflection, and Illumination (2D.03)



OPTION

Street Name Sign (2D.38)

Letter Height Minimums (Ground-Mounted)



- Traffic** • Shall be 4 in. Cap or 4 in./3in. upper/lower
Manual • Supplementary (St., Blvd., etc.) 2 in.

- M** • Should be 6 in. Cap or 6 in./4.5 in. upper/lower
U • Multi-lane streets, speeds >40 mph, Should be 8
T in. Cap or 8 in./6 in. upper/lower
C • Local roads, speed <25 mph may 4 in.
D • Supplementary (St., Blvd., etc.) 3 in.

Street Name Sign (2D.38)

Letter Height Minimums (Overhead)



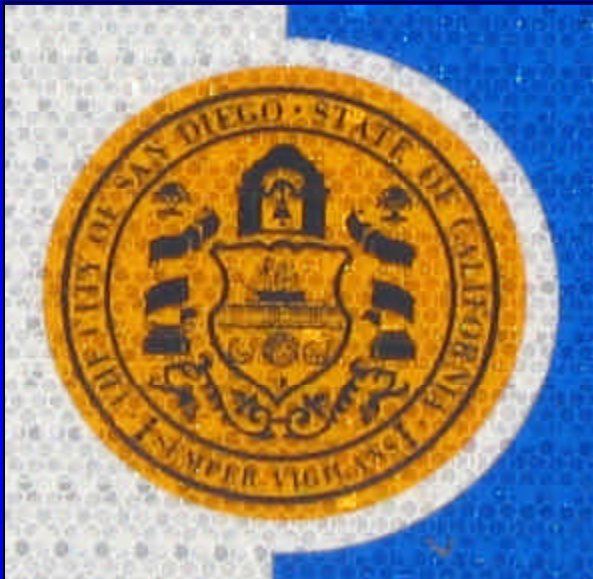
Traffic Manual

- Should be 6 in. Cap or 6 in./4.5 in. upper/lower
- Supplementary (St., Blvd., etc.) 2 in.

MUTCD

- Should be 12 in. Cap or 12 in./9 in. upper/lower
- Supplementary (St., Blvd., etc.) 3 in.

Street Name Sign (2D.38)



**Pictograph shall not
exceed letter height**



Border optional

Advance Street Name Signs (2D.39)



- New Section
- OPTION
- GUIDANCE: Major arterial streets and exclusive turn lanes

Reference Location Signs (2D.46)

MUTCD:

Option on Conventional Highways

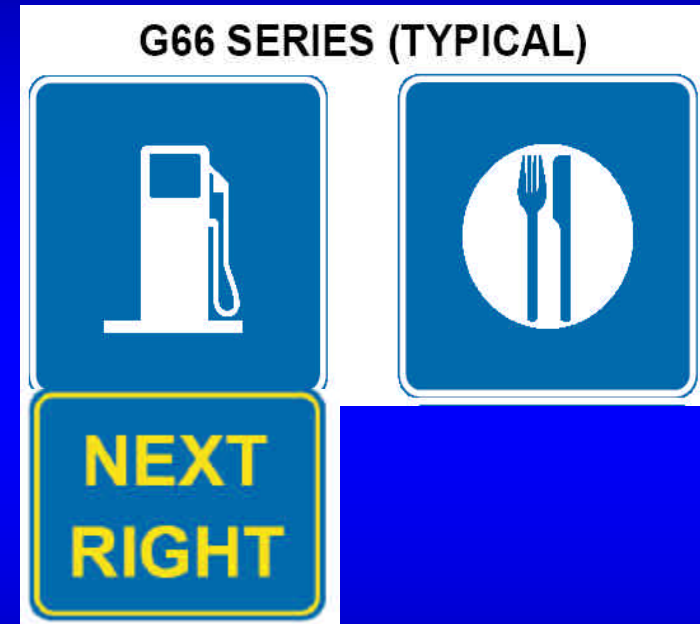
Standard on freeways &
Expressways

Supplement:

Option on Conventional Highways,
Freeways & Expressways



NEXT EXIT (2D.105)



- Traffic Manual Policy NEXT EXIT on Freeways, NEXT RIGHT/LEFT on all other roadways.
- Adopted MUTCD NEXT RIGHT/LEFT on all roadways.

Interchange Exit Numbering (2E.28)



- Exit numbers shall be at each freeway exit

Interchange Exit Numbering (2E.28)

- Exit numbers shall be at each freeway exit
- California 50th state to implement in the nation
- Database maintained on Caltrans web site
- Exit numbers being added on an ongoing basis with other projects
- To date 21% of all exits numbered



Part 3

Markings



Marking Details (3A.05)

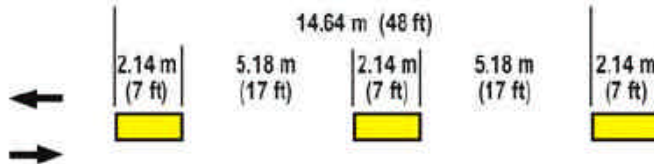
NO CHANGE

Traffic Manual Details 1 thru 41A have been retained in lieu of the MUTCD “N” criteria.

Figure 3A-101. Centerlines - 2 Lane Highways

FOR SPEEDS 65 km/h (40 mph) OR LESS

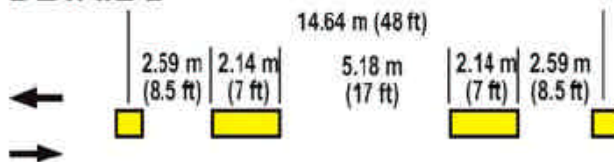
DETAIL 1



POLICY

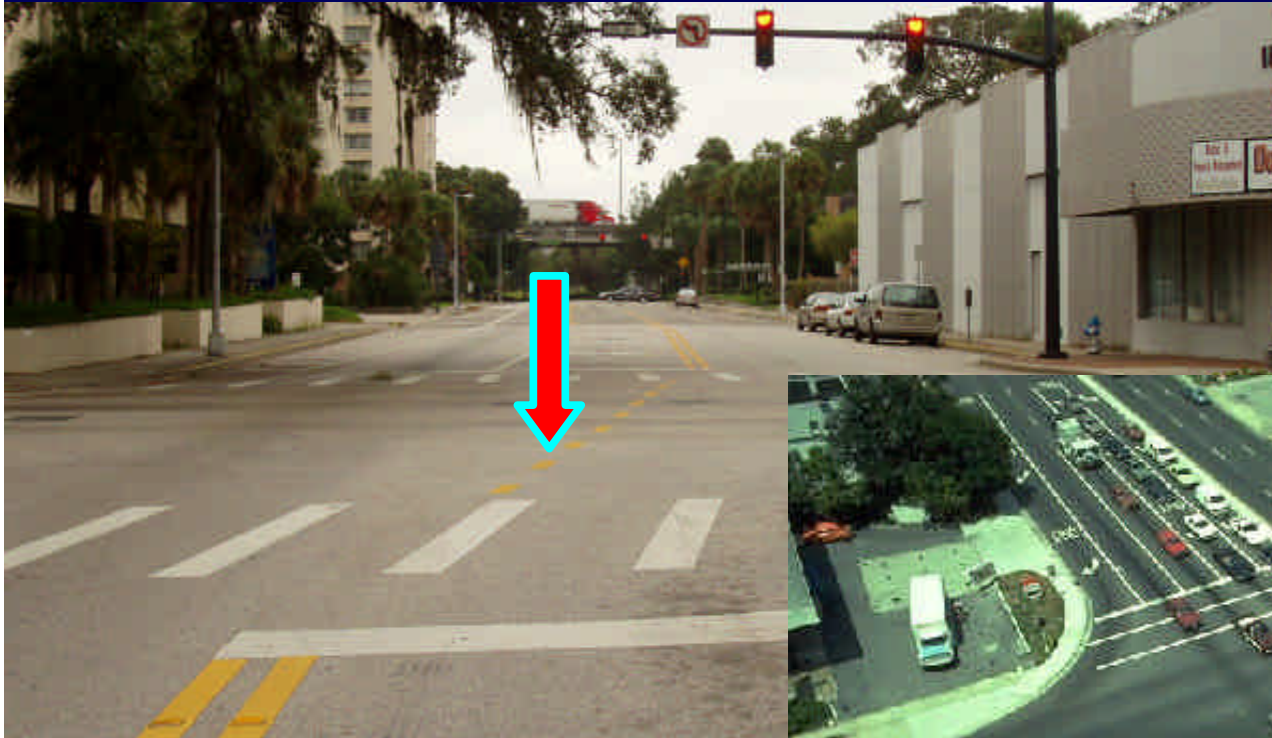
Centerline pattern for use on two-lane streets and highways (normally used on local streets and highways).

DETAIL 2



Centerline pattern with pavement markers for use on two-lane streets and highways.

Extensions thru Intersections (3B.08)



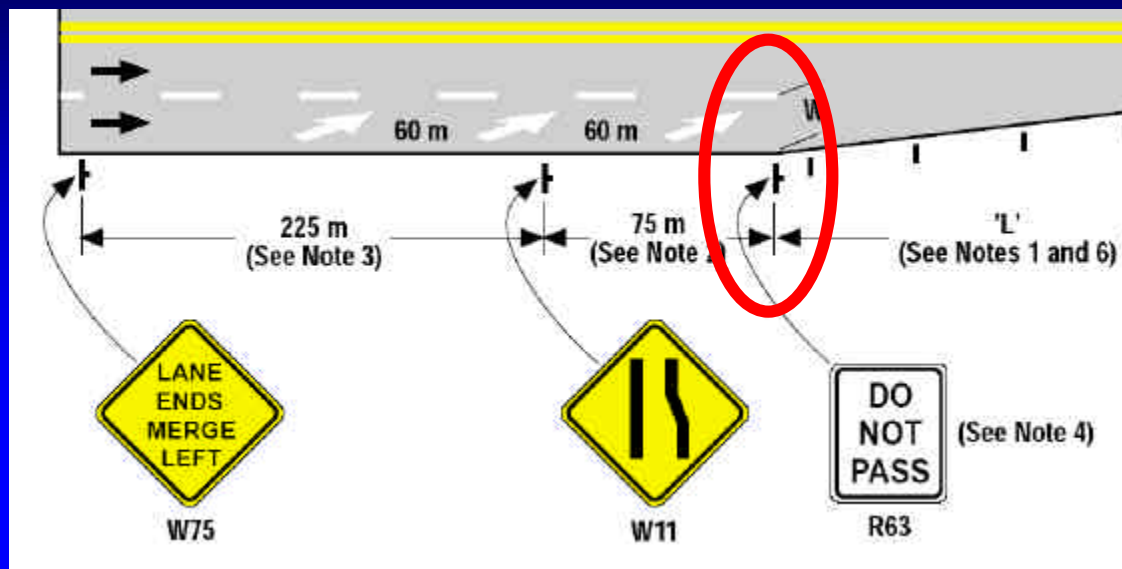
OPTION: Dotted edge line extension through major driveways

GUIDANCE: At offset, skewed, complex, multilegged I/Ss on curves or multiple turn lanes

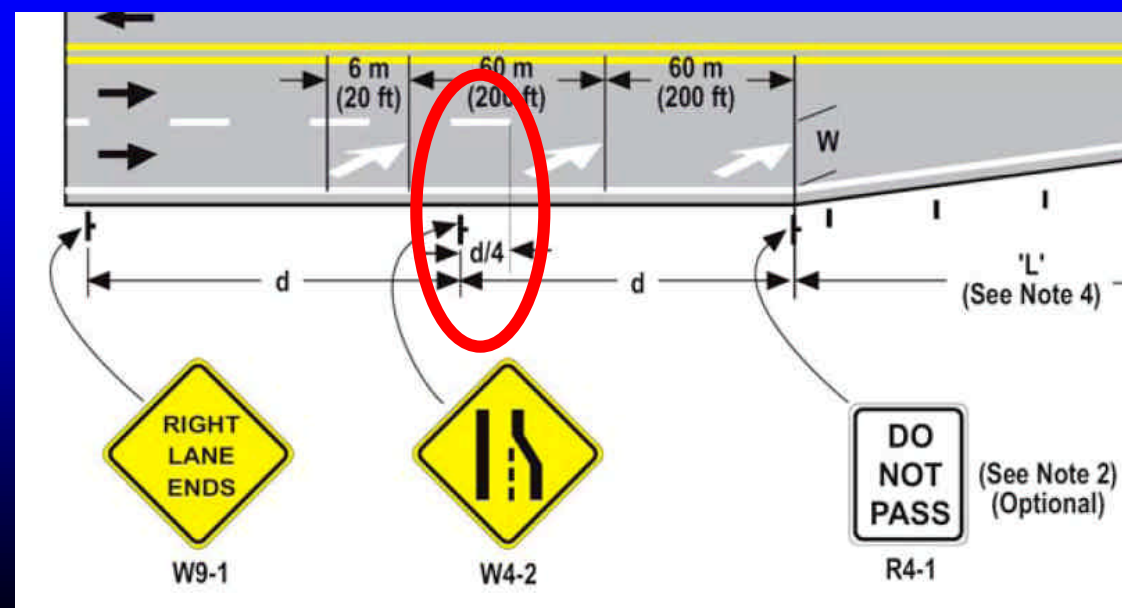


Single dotted line of same color as line being extended

Lane Reduction Transition (3B.09)

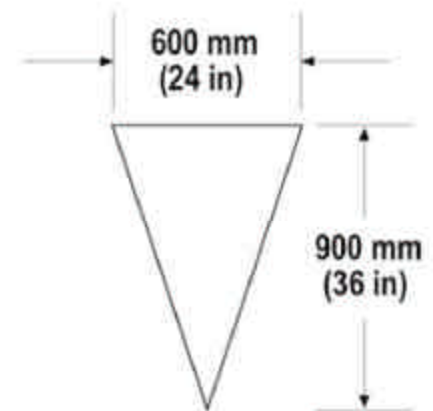
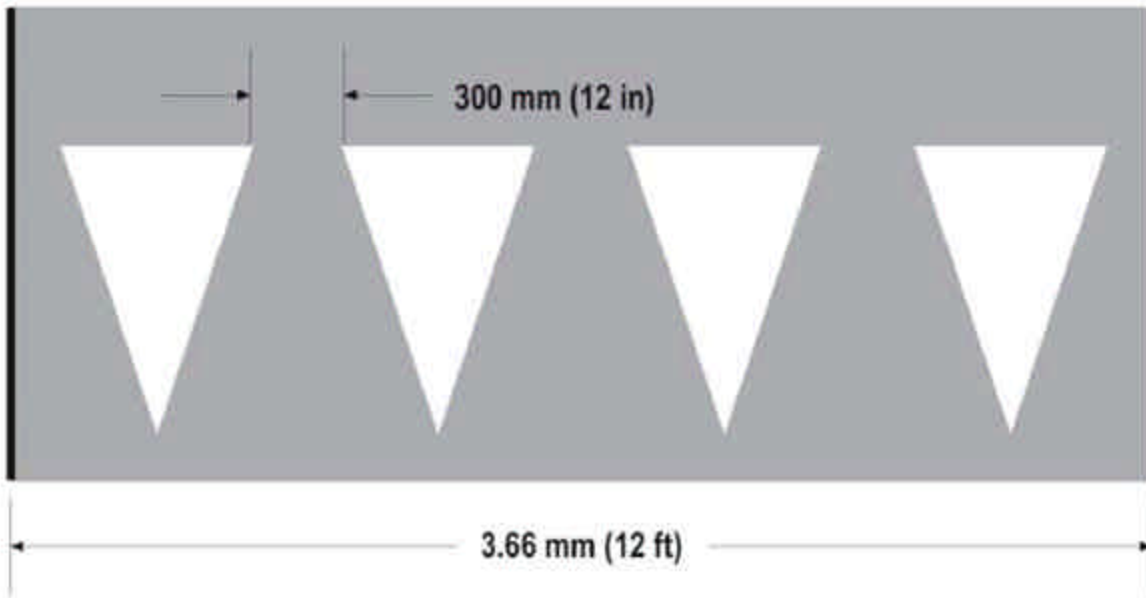


Traffic Manual
Figure 6-15

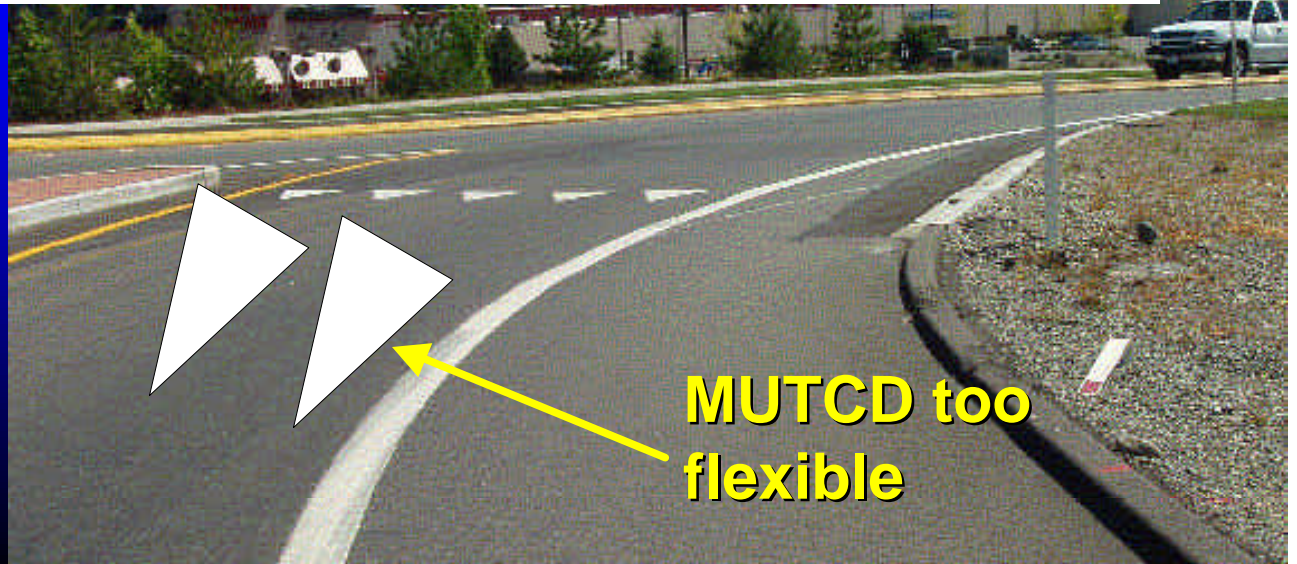


CA Supplement
Figure 3B-12 (CA)

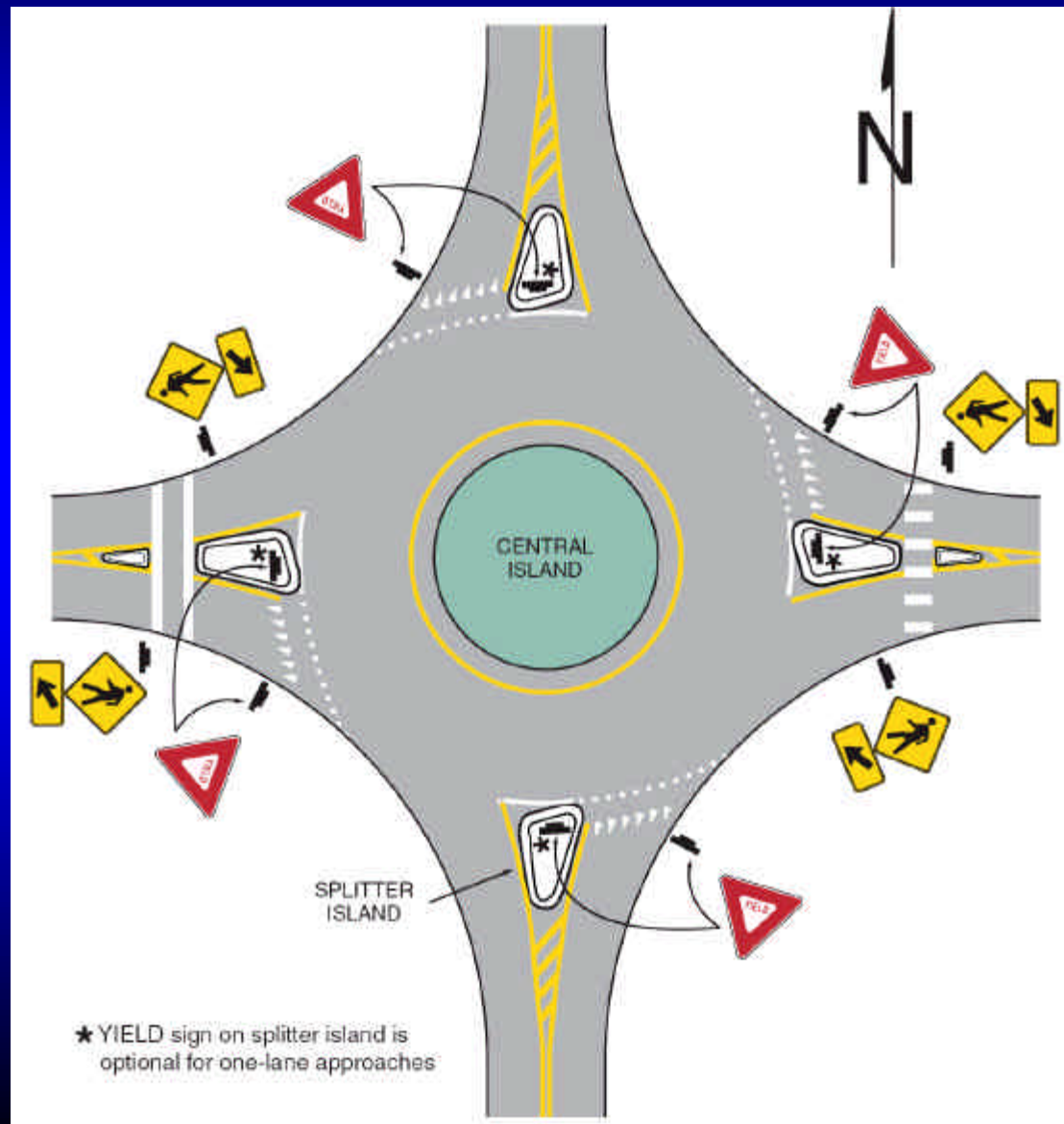
Yield Lines (3B.16)



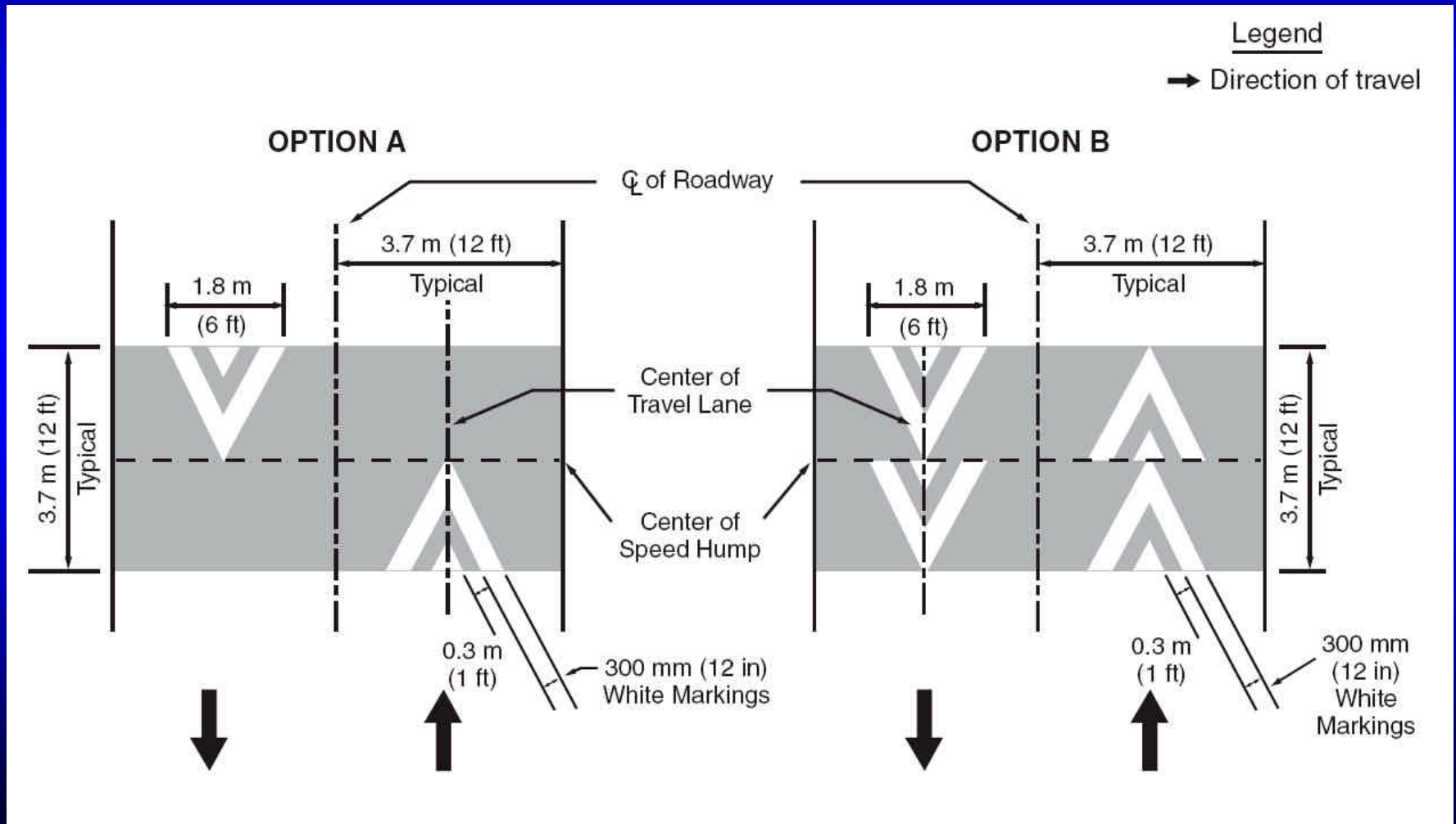
Use is optional
but dimensions
are standard



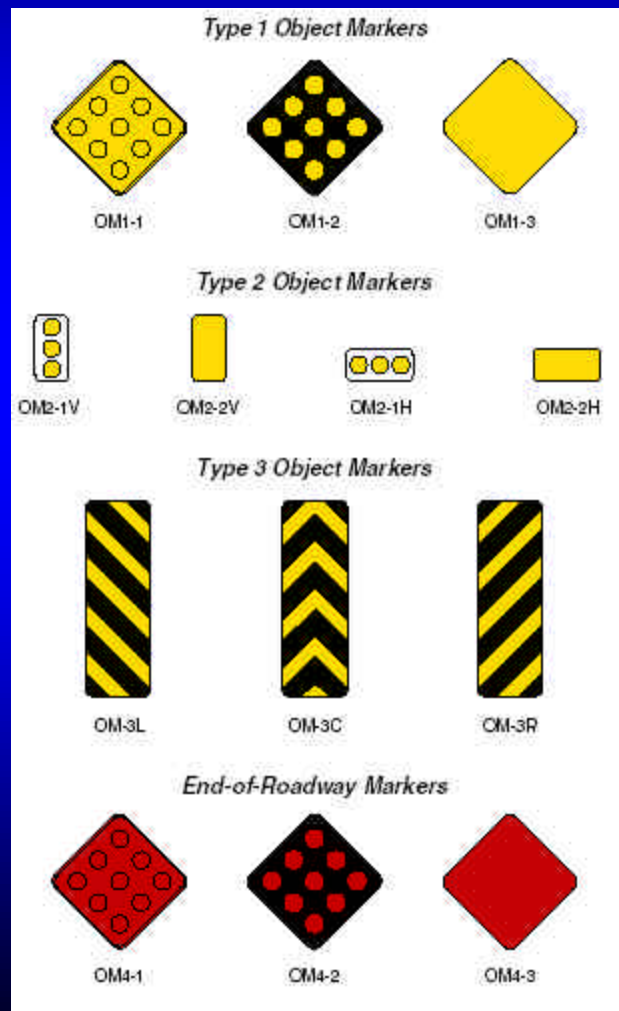
Roundabouts (3B.24)



Speed Hump (3B.26)



Object Markers (3C)



Colored Pavements (3E.01)



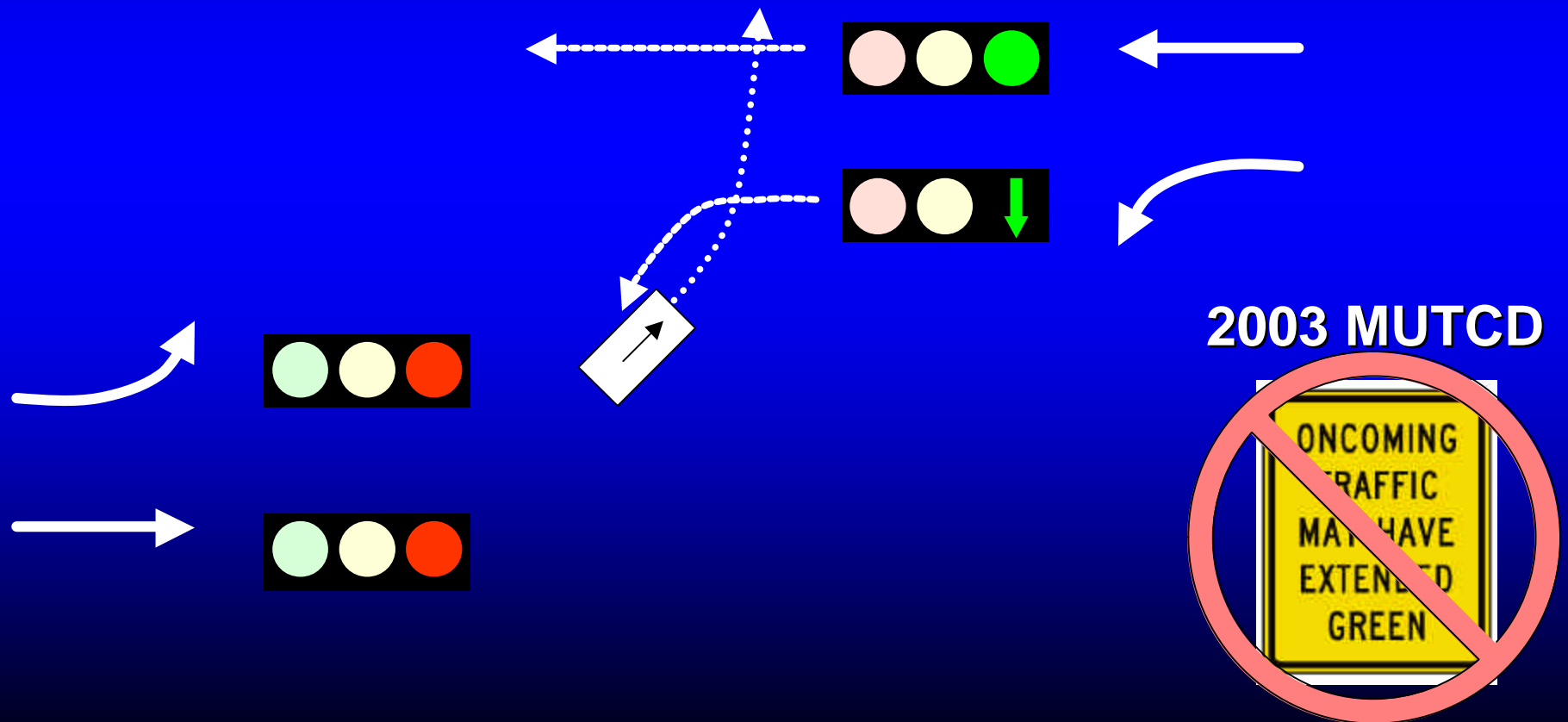
Within white x-walk lines = NOT a TCD

Part 4

Highway Traffic Signals



CA Supplement Example “Yellow Trap” (4D.05)



Pedestrian Signal Head (4E.04)

- New Option for animated eye symbol on signal heads
- Symbol as static marking, not an official TCD.



Countdown Ped Signals (4E.07)

New TCD



In-Roadway Lights (4L)

- IRWLs at marked X-walks
- Not at a STOP, YIELD or Signal control
- In advance, not on or within the X-walk
- Experiment: Red LEDs at Hwy/RR Xing



Part 5

Traffic Control Devices for Low-Volume Roads



Entire Part 5 is New



- Outside of Cities, towns, and less than 400 AADT
- Not a freeway, expressway, I/C Ramp, or road on a designated State highway system
- Paved or unpaved

Low-Volume Roads (5A.01)



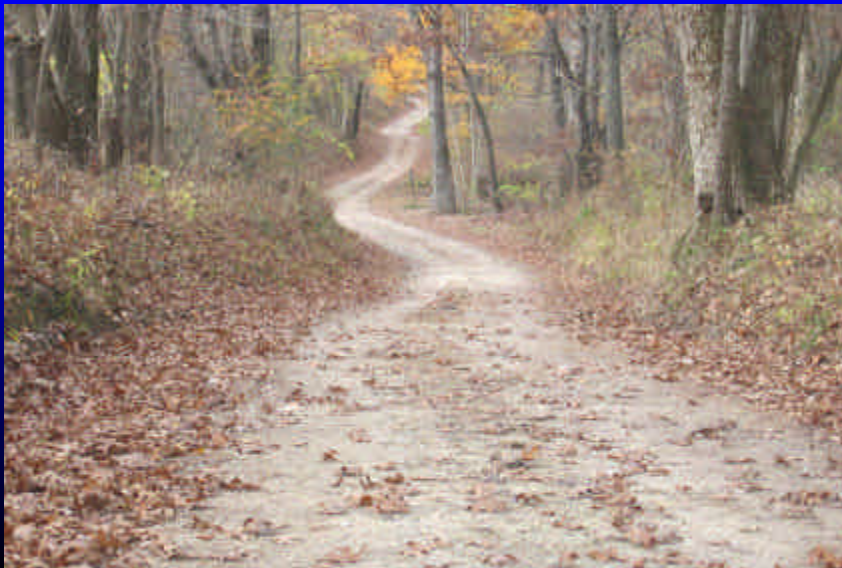
- Typically include farm-to-market, recreational and resource management roads
- MUTCD provides “relief” from extensive TCD use typical on other roads (minimal destination guidance)
- Warn of unusual conditions

Application of Devices on Low-Volume Roads (5A.02)

- **Part 5 does not prohibit the installation nor the full application of traffic control devices on low-volume roads**

Warning Signs for Low-Volume Roads (5C)

- **NO TRAFFIC SIGNS** sign may be used on unpaved, low-volume roads



Markings for Low-Volume Roads (5E)

- Center line markings left to judgment or study
- Edge line markings may be placed on paved facilities with or without centerlines



Part 6

Temporary Traffic Control



Temporary Traffic Control

- This Part was the most conforming of all TM Chapters
- TM Chapter 5 was revised and based on MUTCD 1993 Part 6
- Majority of the changes are between MUTCD 2003 and 1993 Part 6

Temporary Traffic Control

- TTC (Temporary Traffic Control)
- The needs and control of all road users (motorists, bicyclists, and pedestrians.) per ADA Act of 1990



Fundamental Principles of TTCs (6B.01)



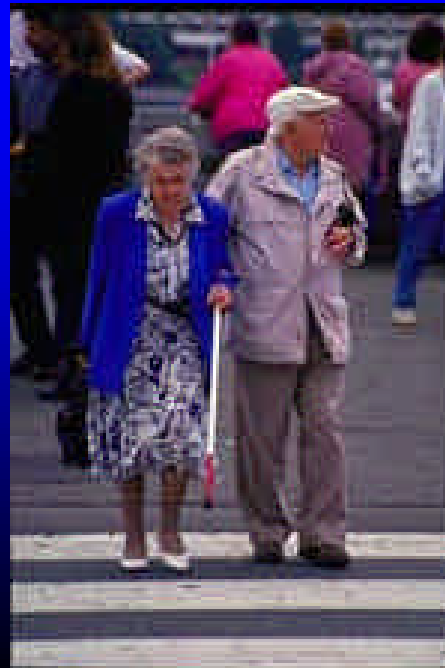
Several references on accounting for the needs of pedestrians with disabilities, bicyclists, and traffic incident management responders have been added.



Pedestrian Considerations (6D.01)

Emphasizes needs for all Pedestrians

Americans with Disabilities Act of 1990



Accessibility Considerations (6D.02)

Standard:

Temporary Facility shall include:

Existing Ped Facilities

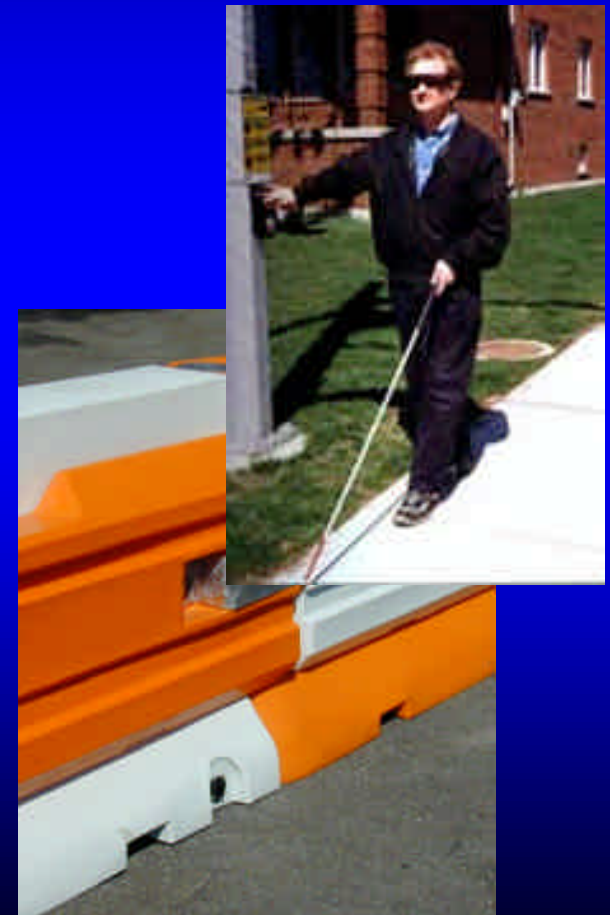
Detectable Warning Devices

Accessible Features



Accessibility Considerations (6D.02)

- Channelization Ped Pathway
Continuous Detectable Edging
- Smooth, continuous hard surface
should be provided



New Ped Detour Signs (6F.53)



M4-9a



M4-9b

ROAD WORK Signs (6F.17)



C11



G20-1

ROAD WORK Signs (6F.17)

~~END CONSTRUCTION
(CA Code C13)~~

~~END SURVEY WORK
(CA Code C32)~~



G20-2 (MUTCD Code)

Typical Applications (6H)

- **MUTCD includes 45 TA's**
- **Traffic Manual included 35 TA's**
- **Caltrans Standard Plans (T Series) also contain TA's**

Traffic Incident Management Areas (6I)

- New Color Fluorescent Pink



Part 7

Traffic Controls for School Areas



TCs for School Areas

- No major changes in this Part
- CVC dictates most of this Part
- Figures have been enhanced from the Traffic Manual Chapter to clarify CVC applications



Reduced Speed School Zone Ahead Signs (7B.12)



S4-5



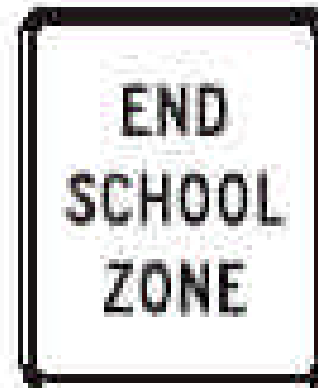
S4-5a

Option

End School Zone Sign (7B.13)



W65-1



S5-2

TRAFFIC FINES DOUBLED Sign (Section 7B.101)



SR59
(CA Code)

**Only in Alameda, Santa Barbara
& Ventura Counties or a city
in any of these counties
per CVC 42011**

In effect until January 1, 2007

STOP Paddle (7E.05)

STOP sign shall be an octagon.

Circle shape only for Highway-Rail Grade Crossing sign.



Part 9

Traffic Controls for Bicycle Facilities



TCs for Bicycle Facilities

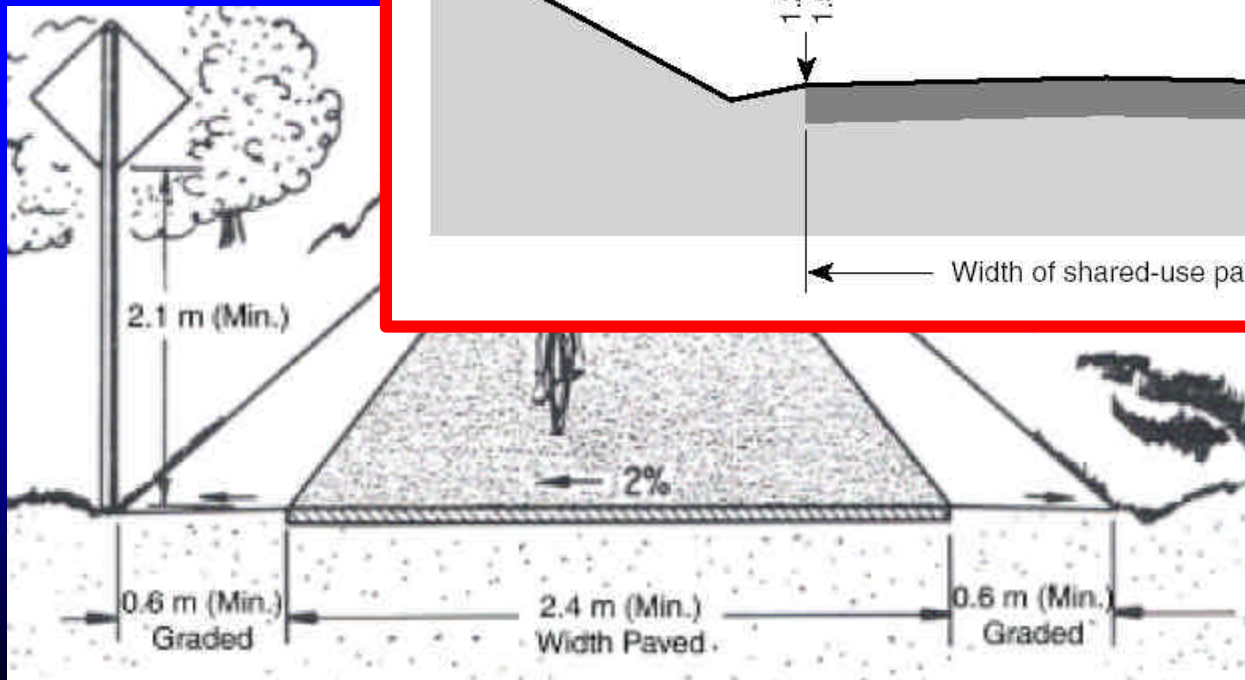
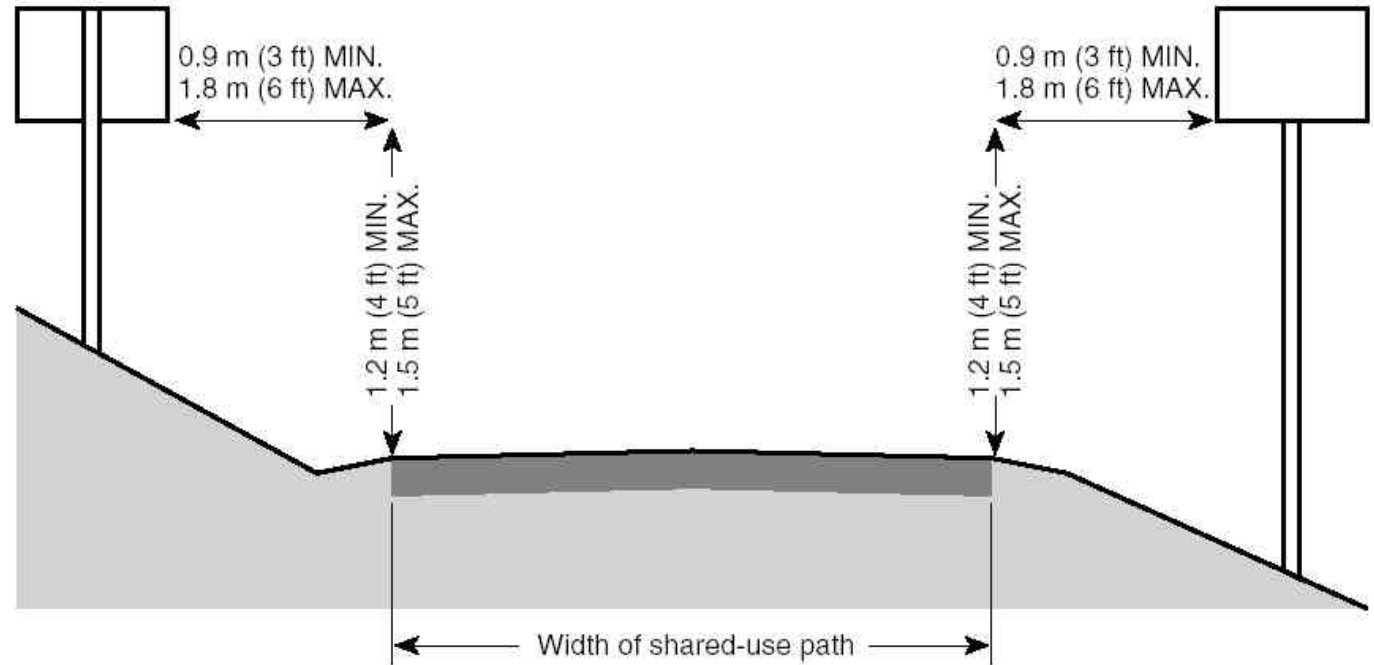
- Majority of this Part is new
- Traffic Manual Chapter 12 was never written, only a place holder
- Caltrans Highway Design Manual Chapter 1000 is incorporated



Lateral/Vertical Clearance

MUTCD

Figure 9B-1. Sign Placement on Shared-Use Paths



HDM

New Warning Signs



W5-4a



W7-5



W8-10



W8-10p

Markings for Bike Lanes

Supplement adds the following w/figures:

- **Markings on Class II Bikeways (Bike Lane)**
- **Treatments at RTO Lanes**
- **Treatment through Interchanges**
- **Treatment where Parking is Prohibited/Permitted**

***Part 8
Traffic Controls
for Highway-Rail Grade Crossings***



***Part 10
Traffic Controls
for Highway-Light Rail Transit
Grade Crossings***



TCs for Hwy- LRT Grade Xings

- Majority of Part 10 is new
- CTCDC's Light Rail Traffic Manual is incorporated
- CPUC regulations have been included
- More details on CPUC regulations available on CPUC web site



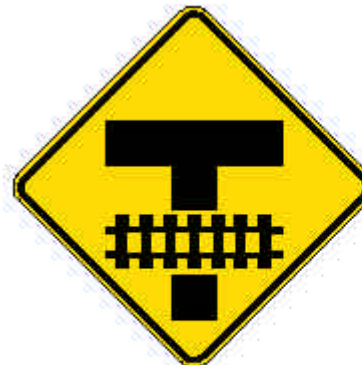
New Warning Signs



W10-5



W10-8



W10-11



W10-11a



W10-11b



W10-12



W10-13



W10-14



W10-14a



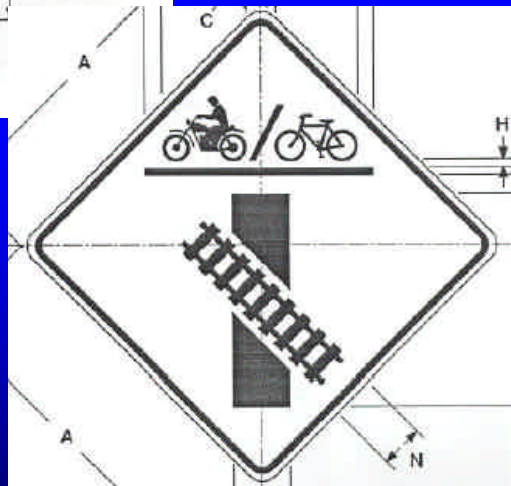
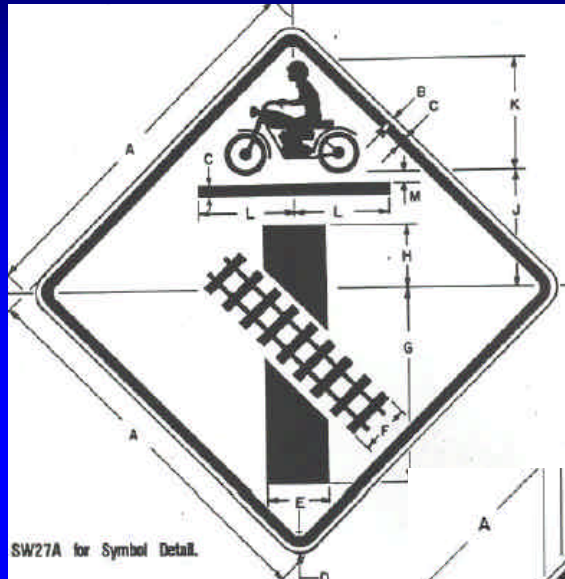
W10-15

CA EXEMPT Sign (8B.05)



- Crossing number not CPUC Code or Reg. number
- Unique Crossing # assigned by CPUC for exempt crossing established prior to 1/1/78

Skewed Crossing Sign (8B.19)



DELETE CA Code SW27 signs

USE